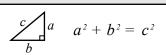
Core 40 Algebra I Reference Sheet

Pythagorean Theorem



Standard Form of a Linear Equation

$$Ax + By = C$$

Equation of a Line

Slope-Intercept Form: y = mx + b where m = slope and b = y-intercept **Point-Slope Form:**

$$y - y_1 = m(x - x_1)$$

Distance Formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \text{distance between}$$
points 1 and 2

Standard Form of a **Quadratic Equation**

$$ax^2 + bx + c = 0$$

Simple Interest Formula

I = prtwhere I =interest p =principal r =rate t =time

Midpoint Formula

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$M = \text{point halfway}$$
between points
$$1 \text{ and } 2$$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Slope of a Line

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

where $m = \text{slope} = \frac{\text{change in } y}{\text{change in } x}$
and $x_2 \neq x_1$

Shape	Formulas for Area (A) and Circumference (C)	
Triangle	$A = \frac{1}{2}bh = \frac{1}{2} \times \text{base} \times \text{height}$	
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h = \frac{1}{2} \times \text{sum of bases} \times \text{height}$	
Parallelogram	$A = bh = \text{base} \times \text{height}$	
Circle	$A = \pi r^2 = \pi \times \text{square of radius}$ $C = 2\pi r = 2 \times \pi \times \text{radius}$	$\pi \approx 3.14$ $\pi \approx \frac{22}{7}$
Figure	Formulas for Volume (V) and Surface Area (SA)	
Cube	$SA = 6s^2 = 6 \times \text{length of side squared}$	
Cylinder (total)	$SA = 2\pi rh + 2\pi r^{2}$ $SA = 2 \times \pi \times \text{ radius} \times \text{ height} + 2 \times \pi \times \text{ radius squared}$	
Sphere	$SA = 4\pi r^2 = 4 \times \pi \times \text{radius squared}$ $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times \text{radius cubed}$	$\pi \approx 3.14$ $\pi \approx \frac{22}{7}$
Cone	$V = \frac{1}{3} \pi r^2 h = \frac{1}{3} \times \pi \times \text{radius squared} \times \text{height}$	
Pyramid	$V = \frac{1}{3}Bh = \frac{1}{3} \times \text{area of base} \times \text{height}$	
Prism	V = Bh = area of base × height	